forming gate electrodes on the gate insulating film;

removing the gate insulating film except under the gate electrodes to expose the main surface of the semiconductor substrate;

forming an insulating film on the exposed main surface of the semiconductor substrate by at least one of a vaporizer method, an oxyhydrogen combustion method, and a wet oxidation method performed at temperatures not lower than 950°C; and

forming impurity diffused layers on both sides of the respective gate electrodes in the semiconductor substrate.

2. (Amended) The semiconductor device manufacturing method according to claim 1, wherein said forming the gate insulating film includes thermally oxidizing the main surface of the semiconductor substrate to form an oxide film, nitrifying the oxide film, and oxidizing the nitrified oxide film again.

3. (Amended) The semiconductor device manufacturing method according to claim 1, wherein said removing the gate insulating film except under the gate electrodes is effected by using at least one of hot phosphoric acid, a mixed solution of hydrofluoric acid and glycerol, a mixed solution of hydrofluoric acid and ethylene glycol, a mixed solution of hydrofluoric acid and ethylene glycol mono-ethyl ether and hydrofluoric acid vapor.

4. (Amended) The semiconductor device manufacturing method according to claim 1, wherein said removing the gate insulating film except under the gate electrodes is effected by use of an isotropic etching process.

7. (Amended) The semiconductor device manufacturing method according to claim 1, further comprising nitrifying the insulating film.

10. (Amended) A semiconductor device manufacturing method comprising:

forming a gate insulating film in an oxynitride form on a main surface of a semiconductor substrate;

forming gate electrodes on the gate insulating film;

making a nitrogen concentration of part of the gate insulating film except under the gate electrodes lower than a nitrogen concentration of part of the gate insulating film which lies under the gate electrodes by oxidizing the gate electrodes and the gate insulating film by at least one of a vaporizer method, an oxyhydrogen combustion method, and a wet oxidation method performed at temperatures not lower than 950°C.

12. (Amended) A semiconductor device manufacturing method comprising:

forming a gate insulating film in an oxynitride form on a main surface of a semiconductor substrate;

forming gate electrodes on the gate insulating film;

forming a post oxidation film on the main surface of the semiconductor substrate except under the gate electrodes by at least one of a vaporizer method, an oxyhydrogen combustion method, and a wet oxidation method performed at temperatures not lower than 950°C;

oxynitrifying the post oxidation film; and

forming impurity diffused layers on both sides of the respective gate electrodes in the semiconductor substrate.

13. (Amended) A semiconductor device manufacturing method comprising:

forming a first insulating film in an oxynitride form on a main surface of a semiconductor substrate;

forming a first conductive layer on the first insulating film;

forming a second insulating film on the first conductive layer;

forming a second conductive layer on the second insulating film;

forming a third insulating film on the second conductive layer;

patterning the third insulating film to form a mask;

etching the second conductive layer, second insulating film and first conductive layer with the third insulating film used as a mask to form stacked gate structures each having a control gate, second gate insulating film and floating gate;

removing part of the first insulating film which lies on the main surface of the semiconductor substrate and is disposed between the stacked gate structures to expose the main surface of the semiconductor substrate and leave another part of the first insulating film which lies under the stacked gate structures, each part of the first insulating film which is left behind under the stacked gate structures acting as a first gate insulating film;

forming a fourth insulating film on side walls and upper surfaces of the stacked gate structures and the exposed main surface of the semiconductor substrate by at least one of a vaporizer method, an oxyhydrogen combustion method, and a wet oxidation method performed at temperatures not lower than 950°C; and

doping impurity into the main surface of the semiconductor substrate with the stacked gate structures used as a mask to form source and drain regions.

14. (Amended) The semiconductor device manufacturing method according to claim 13, wherein said forming the first insulating film includes thermally oxidizing the main surface of the semiconductor substrate to form an oxide film, nitrifying the oxide film, and oxidizing the nitrified oxide film again.

15. (Amended) The semiconductor device manufacturing method according to claim 13, wherein said removing part of the first insulating film is effected by using at least one of hot phosphoric acid, a mixed solution of hydrofluoric acid and glycerol, a mixed solution of

hydrofluoric acid and ethylene glycol, a mixed solution of hydrofluoric acid and ethylene glycol mono-ethyl ether and hydrofluoric acid vapor.

16. (Amended) The semiconductor device manufacturing method according to claim 13, wherein said removing part of the first insulating film which is effected by use of an isotropic etching process.

17. (Amended) The semiconductor device manufacturing method according to claim 13, wherein said forming the fourth insulating film includes forming oxide films on the side walls and upper surfaces of the stacked gate structures and the exposed main surface of the semiconductor substrate.

18. (Amended) The semiconductor device manufacturing method according to claim 13, wherein said forming the fourth insulating film includes forming oxide films on the side walls and upper surfaces of the stacked gate structures and the exposed main surface of the semiconductor substrate, nitrifying the oxide film, and oxidizing the nitrified oxide film again.

20. (Amended) A semiconductor device manufacturing method comprising:

forming a first insulating film in an oxynitride form on a main surface of a semiconductor substrate;

forming a first conductive layer on the first insulating film;

forming a second insulating film on the first conductive layer;

forming a second conductive layer on the second insulating film;

forming a third insulating film on the second conductive layer;

patterning the third insulating film to form a mask;

etching the second conductive layer, second insulating film and first conductive layer with the third insulating film used as a mask to form stacked gate structures each having a

control gate, second gate insulating film and floating gate, each part of the first insulating film which lies under the stacked gate structures acting as a first gate insulating film;

making a nitrogen concentration of the first insulating film which is disposed between the respective stacked gate structures lower than a nitrogen concentration of the first insulating film which lies under the stacked gate structures by oxidizing the stacked gate structures and the first insulating film disposed between the respective stacked gate structures by at least one of a vaporizer method, an oxyhydrogen combustion method, and a wet oxidation method performed at temperatures not lower than 950°C; and

doping impurity into the main surface of the semiconductor substrate with the stacked gate structures used as a mask to form source and drain regions.

22. (Amended) A semiconductor device manufacturing method comprising:

forming a first insulating film in an oxynitride form on a main surface of a semiconductor substrate;

forming a first conductive layer on the first insulating film;

forming a second insulating film on the first conductive layer;

forming a second conductive layer on the second insulating film;

forming a third insulating film on the second conductive layer;

patterning the third insulating film to form a mask;

etching the second conductive layer, second insulating film and first conductive layer with the third insulating film used as a mask to form stacked gate structures each having a control gate, second gate insulating film and floating gate;

removing part of the first insulating film which lies on the main surface of the semiconductor substrate and is disposed between the stacked gate structures to expose the main surface of the semiconductor substrate and leave another part of the first insulating film